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EXAMINER	
SHERMAN, STEPHEN G	

ART UNIT	PAPER NUMBER
2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/748,171	ZERPHY ET AL.	
	Examiner	Art Unit	
	Stephen G. Sherman	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,12 and 15-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *9,10,12, 16-17, 26 and 28* is/are allowed.

6)☒ Claim(s) *1-8,15,18-25 and 29* is/are rejected.

7)☒ Claim(s) *27* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the amendment filed the 6 December 2006.

Claims

Response to Arguments

2. Applicant's arguments with respect to claims 1-8, 15-25 and 29 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3. Claim 27 is objected to because of the following informalities: Claim 27 appears to be a duplicate claim of claim 28. Claim 27 is dependent from claim 26, and the recited limitations of claims 26 and 27 are exactly the same as the limitations of independent claim 28. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 15 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over McClintock (US 6,956,541) in view of Nishida (US 5,767,818).

Regarding claim 15, McClintock teaches a method of sign display panel communication, wherein the sign display panel comprises a controller electrically connected to a set of display units (Fig. 1B), the method comprising:

setting a timer to a time interval (see col. 13, line 3);

receiving a series of communication integrity messages from the controller (see col. 13, lines 2-3, where the sync pulse constitutes an integrity message because not receiving a sync pulse indicates something wrong with the link);

resetting the timer to the time interval upon receipt of each of the plurality of communication integrity messages (see col. 13, line 3, where there is inherently a resetting of the timer here); and

sending an error message to be received by the controller when the timer expires after the time interval (see col. 13, lines 1-7, and see Fig. 8A, 802 and 804, and see col. 13, lines 2-7, where sending a ping after detecting failing to receive a sync pulse constitutes sending an error message to the controller).

McClintock fails to teach wherein the set of display units and the controller are connected in a closed serial loop.

Nishida discloses wherein a set of display units and a controller are connected in a closed serial loop (Figure 16 shows that the address setting device 90, i.e. controller, and the display units 55 are connected in a closed serial loop.).

Therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to put the display units taught by McClintock into a closed serial loop as taught by Nishida in order to provide a display device which includes a simplified wiring for respective display elements to facilitate the assembly and maintenance.

Regarding claim 29, McClintock teaches a system for sign display panel communication wherein the sign display panel comprises a controller and a set of display units (Fig. 1B), the system of communication comprising:

means for sending a message from the controller to at least one of the set of display units (Fig. 1B, where the connection between the controller and the display unit is the means to send the message);

means for receiving the message at the at least one of the set of display units (Fig. 1B, where the connection between the controller and the display unit is the means to receive the message); and

means for sending an indication of the error from the one display unit to be received by the controller if any of the at least one display units detects an error in the message (see col. 13, lines 1-7, and see Fig. 8A, 802 and 804, and see col. 13, lines 2-7, where sending a ping after detecting failing to receive a sync pulse constitutes sending an error message to the controller).

McClintock fails to teach wherein the set of display units and the controller are connected in a closed serial loop.

Nishida discloses wherein a set of display units and a controller are connected in a closed serial loop (Figure 16 shows that the address setting device 90, i.e. controller, and the display units 55 are connected in a closed serial loop.).

Therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to put the display units taught by McClintock into a closed serial loop as taught by Nishida in order to provide a display device which includes a simplified wiring for respective display elements to facilitate the assembly and maintenance.

7. Claims 1-8 and 18-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over McClintock (US 6,956,541) in view of Matsuzaki et al. (US 6,492,982) and further in view of Nishida (US 5,767,818).

Regarding claim 1, McClintock teaches a sign display panel comprising:

a controller (Fig. 1B, controller 112) connected to a set of display units (Fig. 1B, 132 - 142), the controller comprising a central processing unit (see col. 6, lines 30-31, where the controller is a computing device so it inherently has a CPU) and a memory (see col. 6, lines 43-44) for storing controller software (see col. 6, lines 30-33) configured for execution by the central processing unit wherein the controller software comprises instructions for sending a message to at least one of the set of display units (see col. 6, lines 30-33); and

each one of the display units comprising a central processing unit (Fig. 2, computer 206, see col. 7, lines 39-40) and a memory (see col. 7, lines 42-43) for storing display unit software configured for execution by the central processing unit wherein the display unit software comprises instructions for detecting an error (see col. 8, lines 17-19) and, if the error is detected, sending an error message to be received by the controller (Fig. 8A, 802 and 804, see col. 13, lines 2-7, where sending a ping after detecting failing to receive a sync pulse constitutes sending an error message to the controller).

McClintock fails to explicitly teach detecting an error in the message.

Matsuzaki et al. disclose a display panel connected to a local controller (Fig. 1) that detects an error in the message sent from the controller (see col. 5, lines 64-66, where the program data is the message).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Matsuzaki in the display panel of

McClintock in order to be able to fix errors in the display data before they become visible.

McClintock and Matsuzaki et al. fail to teach wherein the set of display units and the controller are connected in a closed serial loop.

Nishida discloses wherein a set of display units and a controller are connected in a closed serial loop (Figure 16 shows that the address setting device 90, i.e. controller, and the display units 55 are connected in a closed serial loop.).

Therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to put the display units taught by the combination of McClintock and Matsuzaki et al. into a closed serial loop as taught by Nishida in order to provide a display device which includes a simplified wiring for respective display elements to facilitate the assembly and maintenance.

Regarding claim 2, McClintock, Matsuzaki et al. and Nishida dislcose the sign display panel of claim 1.

Matsuzaki et al. also disclose a sign display panel wherein the display unit software comprises instructions for detecting errors in parity (see col. 5, lines 64-65).

Regarding claim 3, McClintock, Matsuzaki et al. and Nishida dislcose the sign display panel of claim 1.

McClintock also discloses a sign display panel wherein the controller software further comprises instructions for determining which one of the display units sent the

error message (see col. 12, lines 28-31, and see col. 14, lines 20-22, where the error message was considered the ping sent from the display unit to the controller and it is inherent that the ping message contains address information on which display unit sent the message).

Regarding claim 4, McClintock, Matsuzaki et al. and Nishida dislcose the sign display panel of claim 3.

McClintock also discloses a sign panel wherein the controller software determines which of the set of the display units sent the error message based on an integer associated with the error message (see col. 12, lines 28-31, and see col. 14, where an address contains integers, therefore the location of the display unit that sent the ping message is based on at least one integer used in the address information).

Regarding claim 5, McClintock, Matsuzaki et al. and Nishida disclose the sign display panel of claim 4.

McClintock also discloses a sign panel wherein the integer indicates a position of the one display unit that sent the error message relative to each other display unit of the set of display units (see col. 12, lines 18-21, where it is inherent that network address information indicates the position of a display unit relative to each other display unit).

Regarding claim 6, McClintock teaches a method of sign display panel communication wherein the sign display panel comprises a controller (Fig. 1B, controller

112) and a set of display units (Fig. 1B, 132-142), the method of communication comprising:

sending a message from the controller to at least one of the set of display units (see col. 6, lines 30-33);

receiving the message at the at least one of the set of display units (see col. 8, lines 3-5, where the display information it receives must have come from the controller).

McClintock fails to explicitly teach sending an indication of the error from the one display unit to be received by the controller if any of the at least one display units detects an error in the message.

Matsuzaki et al. disclose a display panel connected to a local controller where there is an event of sending an indication of the error from a display unit to be received by the controller if any of the at least one display units detects an error in the message (see col. 5, lines 64-66, where the program data is the message).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Matsuzaki et al. in the method of McClintock in order to be able to fix errors in the display data before they become visible.

McClintock and Matsuzaki et al. fail to teach wherein the set of display units and the controller are connected in a closed serial loop.

Nishida discloses wherein a set of display units and a controller are connected in a closed serial loop (Figure 16 shows that the address setting device 90, i.e. controller, and the display units 55 are connected in a closed serial loop.).

Therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to put the display units taught by the combination of McClintock and Matsuzaki et al. into a closed serial loop as taught by Nishida in order to provide a display device which includes a simplified wiring for respective display elements to facilitate the assembly and maintenance.

Regarding claim 7, McClintock, Matsuzaki et al. and Nishida disclose the method of claim 6.

McClintock also discloses a method further comprising determining which one of the set of display units sent the indication (see col. 12, lines 28-31, and see col. 14, lines 20-22, where the error message was considered the ping sent from the display unit to the controller and it is inherent that the ping message contains address information on which display unit sent the message).

Regarding claim 8, McClintock, Matsuzaki et al. and Nishida disclose the method of claim 7.

McClintock also discloses a method further comprising determining which of the display units sent the indication based on an integer associated with the indication (see col. 12, lines 28-31, and see col. 14, where an address contains integers, therefore the location of the display unit that sent the ping message is based on at least one integer used in the address information).

Regarding claim 18, McClintock discloses a method of sign display panel communication, wherein the sign display panel comprises a controller electrically connected to a set of display units (Fig. 1B), the method comprising: sending a series of communication integrity messages to the set of display units (see col. 13, lines 2-3, where the sync pulse constitutes an integrity message because not receiving a sync pulse indicates something wrong with the link);

McClintock fails to teach receiving a message from at least one of the set of display units in response to each of the series of communication integrity messages; and determining if the message indicates a communication error.

Matsuzaki et al. disclose receiving a message from a display unit in response to each of the series of communication integrity messages; and determining if the message indicates a communication error (see col. 5, lines 64-67, where the controller receives a message from the display unit in response to the program data message, which includes a parity check thus making it an integrity message, and determines that the message indicates an error was sensed by the display device).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Matsuzaki et al. in the method of McClintock in order to be able to fix errors in the display data before they become visible.

McClintock and Matsuzaki et al. fail to teach wherein the set of display units and the controller are connected in a closed serial loop.

Nishida discloses wherein a set of display units and a controller are connected in a closed serial loop (Figure 16 shows that the address setting device 90, i.e. controller, and the display units 55 are connected in a closed serial loop.).

Therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to put the display units taught by the combination of McClintock and Matsuzaki et al. into a closed serial loop as taught by Nishida in order to provide a display device which includes a simplified wiring for respective display elements to facilitate the assembly and maintenance.

Regarding claim 19, McClintock, Matsuzaki et al. and Nishida disclose the method of claim 18.

Matsuzaki et al. also disclose a method further comprising determining a location of the communication error based on the error message if the message indicates a communication error (see col. 5, lines 64-67, where in order for the controller to re-transmit the data to the display panel it must know the location of the error).

Regarding claim 20, McClintock, Matsuzaki et al. and Nishida disclose the method of claim 24.

Matsuzaki et al. also disclose an error message corresponds to a display unit that sent the error message (see col. 5, lines 64-67, where the retransmit request is an error message and the message corresponds to the display unit that sent it).

Nishida also discloses wherein the error message is an integer (Column 13, line 58 to column 14, line 16 explain that if a message starts at the integer 1 and every display panel increments the integer until the end, and since there are 50 display panels the integer ends at 51, and when the integer 51 is received, "the address setting has been completed without any trouble," which the examiner understands to mean that if the integer received is not 51 then an "error" has occurred which constitutes the message as an "error" message.).

Regarding claim 21, McClintock, Matsuzaki et al. and Nishida disclose the method of claim 18.

McClintock also discloses a method further comprising: setting a timer to a time interval upon sending each of the communication integrity messages; and initiating a diagnostic utility if the timer expires before receiving the message (Fig. 7A, see col. 13, lines 20-42, where waiting for an acknowledgement to be returned by the display unit after sending a sync pulse indicates the use of a time limit, and where the discovery process to determine the failure of a response is a diagnostic utility).

Regarding claim 22, McClintock discloses a controller configured for use with a sign display panel comprising the controller connected to a set of display units (Fig. 1B), the controller comprising: a central processing unit (see col. 6, lines 30-31, where the controller is a computing device); an I/O interface for sending a series of communication integrity messages to at least one of the set of display units (see col. 13, lines 2-3,

where the sync pulse constitutes an integrity message because not receiving a sync pulse indicates something wrong with the link); and a memory (see col. 7, lines 42-43) comprising controller software configured for execution by the central processing unit (see col. 6, lines 30-33).

McClintock does not explicitly teach a controller determining an error in the communication network based on a message received in response to each of the series of communication integrity messages.

Matsuzaki et al. disclose a controller determining an error in the communication to a display unit based on a message received in response to each of the series of communication integrity messages (see col. 5, lines 64-67, where the controller receives a message from the display unit in response to the program data message, which includes a parity check thus making it an integrity message, and determines that the message indicates an error was sensed by the display device).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Matsuzaki in the method of McClintock in order to be able to fix errors in the display data before they become visible.

McClintock and Matsuzaki et al. fail to teach wherein the error message comprises an integer greater than a total number of display units in the set of display units and each display unit receives the message decrements the integer.

Nishida discloses wherein the error message comprises an integer greater than a total number of display units in the set of display units and each display unit receives

the message decrements the integer (Column 13, line 58 to column 14, line 16 explain that if a message starts at the integer 1 and every display panel increments the integer until the end, and since there are 50 display panels the integer ends at 51, and when the integer 51 is received, "the address setting has been completed without any trouble," which the examiner understands to mean that if the integer received is not 51 then an "error" has occurred which constitutes the message as an "error" message. Then column 17, lines 14-22 explain that the address setting function could be changed such that the integer could be decremented each time. The examiner takes this to mean that since previously starting at 1 and going to 51, the panel will now start at 51 and decrement towards 1, and if a 1 is not received, and error has occurred. Since the number of display panels is 50 and the address setting device starts with the integer 51, then that error message would comprise an integer greater than the total number of display units, and as explained, each display panel would decrement the integer.).

Therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to use the error message decrementing method taught by Nishida with the controller configured for use with a sign display panel taught by the combination of McClintock and Matsuzaki et al. in order to provide a simplified messaging method so that the display device can include a simplified wiring for respective display elements to facilitate the assembly and maintenance.

Regarding claim 23, McClintock, Matsuzaki et al. and Nishida disclose the controller of claim 22.

McClintock also discloses a controller further comprising a timer set to a time interval, wherein the controller software further comprises instructions for resetting the timer to the time interval upon sending each of the series of communication integrity messages and initiating a diagnostic utility if no message is received before the timer expires message (Fig. 7A, see col. 13, lines 20-42, where waiting for an acknowledgement to be returned by the display unit after sending a sync pulse indicates the use of a time limit, and where the discovery process to determine the failure of a response is a diagnostic utility).

Regarding claim 24, McClintock, Matsuzaki et al. and Nishida disclose the controller of claim 22.

Matsuzaki et al. also disclose a controller of claim 22 wherein the instructions for determining further comprise determining a location of the error based on the message (see col. 5, lines 64-67, where there must be address or location information in the message sent from the display unit in order for the controller to properly re-transmit to the display unit).

Regarding claim 25, McClintock, Matsuzaki et al. and Nishida disclose the controller of claim 24.

Matsuzaki et al. also disclose a controller wherein the message comprises an integer associated with a display unit that sent the message and the instructions for determining a location of the error further comprise determining the display unit that

sent the indication based on the integer (see col. 5, lines 44-67, where it is inherent that since networking is involved that the display unit can read an address of the message to determine its source and where such an address constitutes an integer).

Allowable Subject Matter

8. Claims 9-10, 12, 16-17, 26 and 28 are allowed.

9. The following is a statement of reasons for allowance:

Relative to independent claim 9, the major difference between the prior art of record (McClintock, Matsuzaki, Cok and Nishida) and the instant invention is that said prior art does not teach a display unit comprising instructions for executing the message if the address byte is 0 or decrementing the address byte and sending the message to another display unit if the address byte is greater than zero.

Relative to independent claims 16, 26 and 28, the major difference between the prior art of record (McClintock, Matsuzaki, Cok and Nishida) and the instant invention is that said prior art does not teach a set of sign display panel elements wherein the error message comprises an integer greater than a total number of the set of display units and each display unit that receives the error message from the communication network decrements the integer.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen G. Sherman whose telephone number is (571) 272-2941. The examiner can normally be reached on M-F, 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SS

3 January 2007

AMR A. AWAD
SUPERVISORY PATENT EXAMINER